

gastro-intestinal tract. It diminished in size, but again resumed its original dimensions. On examination it was felt through the anterior vaginal fornix to the left of the uterus, and indistinct fluctuation could be obtained. The diagnosis of ovarian cyst was made, and celiotomy was performed. The pelvic organs were found to be normal, the tumor being a cyst which sprung from the tail of the pancreas and was so adherent toward the vertebral column that it could not be enucleated. Nearly two quarts of chocolate-colored fluid were withdrawn and the edges of the cyst were stitched to those of the wound. The patient made a good recovery and was quite well six months after the operation.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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EMPHYSEMA OF THE LUNG.

THE exact pathology of emphysema of the lung has been shrouded in an obscurity quite remarkable in view of the great frequency of the disease. The old idea, that the trouble was merely a dilatation of the air-vesicles as the result of long-continued and excessive intra-alveolar pressure, has gradually been abandoned. We now know the increased size of the air-spaces to be due to disappearance of the alveolar walls separating adjoining air-vesicles, and their resulting mergence.

Fastening upon two constantly noticed characters of the lesion as observed by him (its greater intensity on the surface of the lung, particularly at the edges, and the disappearance of anthracotic pigment from the emphysematous areas), GRAWITZ (*Deutsche medicinische Wochenschrift*, 1892, No. 10, 201) is led to the belief that the disease is primarily a degeneration of the connective tissue of the alveolar wall dependent upon defective nutrition, either as the result of defective blood-supply, inflammation, or senile decay. Three forms of the disease are distinguished in accordance with their different modes of production.

The experimental production of the first of these varieties was observed by Grawitz in rabbits, which had been made to inhale phosphoretted hydrogen. This poisonous gas induced œdema of the lungs, which, in a few days, led to marked degeneration of the connective tissue of the alveolar walls, and later, union of adjoining air-vesicles with the formation of an emphysema typical in every respect. To this form of emphysema he applies the adjective "hydropic," and he believes it to be the form of the disease which, in man, so

frequently complicates disease of the kidneys and heart, with resulting impairment of the pulmonary circulation.

The second form of the disease is called by Grawitz "inflammatory." It is thought to depend upon degeneration of the connective tissue of the lung consequent upon chronic inflammation. The author has elsewhere shown that degeneration of connective tissue is accompanied by gradual disappearance of the fibrous element and return to a more cellular condition. This implies loss of strength, and it has also been shown that the connective-tissue cells, under these circumstances, are capable of becoming wandering cells, and frequently show a tendency to remove dead tissue or foreign particles. These cells, containing anthracotic pigment, have been observed by Grawitz in the lymph spaces of the lung in his cases of emphysema, and he believes the disappearance of pigment from the emphysematous areas to be due to their phagocytic action.

The third variety of emphysema, the "senile" or "atrophic" form, is thought to be only a part of the general degenerative process throughout the body. Impairment of circulation and inflammatory changes are not infrequently also associated in its production, but it is not infrequently observed without these.

THE ETIOLOGY OF PLEURISY AS IT BEARS UPON PROGNOSIS AND TREATMENT.

THOUGH pleurisy may be regarded as among the best-understood diseases in so far as its pathology and symptomatology are concerned, it has few equals as regards the difficulty of rendering a correct prognosis. Why, of two cases precisely similar to all appearances, should the one quickly go on to recovery after a single tapping, while the other hangs on most persistently or develops into empyema in spite of every care on the part of the physician? Nothing is more unaccountable than the great diversity in the course of the disease under apparently identical circumstances. Furthermore, the greatest difference of opinion obtains as to the treatment best suited to its cure. Any observations, then, which may throw light upon its prognosis, and which may serve to establish its treatment upon a firm rational basis must be welcomed with more than usual interest.

The study of the past few years upon this subject has demonstrated the presence of several different species of pathogenic bacteria in pleuritic exudates, both serous and purulent, and as these observations have accumulated it has been possible to trace a relationship between the severity and duration of the disease and the species of micro-organism present. The most recent and one of the most careful of these studies is reported by PRINCE LUDWIG FERDINAND in the *Deutsches Archiv für klinische Medizin* (1892, l. 1), and as the conclusions there reached are substantially in accord with those of most other observers, it has seemed proper to present them here somewhat in detail.

In the investigation a small amount of the exudate was withdrawn from the chest by means of an aspirator. A portion of this was examined morphologically in stained cover-glass preparations; from another portion plate cultures were made; and animal inoculations were undertaken, as a rule,

with the remainder. In this way 23 cases were examined. In 5 of these the diplococcus pneumoniae alone was found; in 3, the staphylococcus alone; in 5, the streptococcus alone; in 2, the diplococcus and streptococcus together; in 1, the staphylococcus and streptococcus; in 2, the bacillus tuberculosis; and 5 were found to be bacteria-free.

All the cases in which the diplococcus pneumoniae was found accompanied acute lobar pneumonia. In 2, the pleuritic exudate was serous; in 1, seropurulent and scanty; in 1, purulent from the start; and in 2, serous at first, but later purulent. In one case pericarditis was also present. In all the cases in which the diplococcus was found alone, the course of the disease was comparatively short, and recovery was rapid, though, in the two empyema cases, not until resection of a rib was performed, after waiting about three weeks in the hope that spontaneous resorption might occur.

In one case in which the examination was undertaken four days after crisis of the pneumonia, though the diplococci were seen on microscopical examination to be very plentiful in the exudate, both cultures and animal inoculations were negative, suggesting the death of the diplococci at the time of or very soon after the crisis. This observation is of interest in connection with what is known regarding the short life of the diplococcus pneumoniae in pure cultures, and suggests a possible explanation of the shorter course and more favorable outcome of pleurisies caused by that germ.

Prince Ferdinand has found record of 200 cases of pleurisy in which the diplococcus pneumoniae was found alone.

The etiological relationship of the ordinary pyogenic bacteria to empyema has long been universally admitted, but it is only recently that attention has been called by Levy to the fact that they may also be the cause of serous pleurisy not advancing to purulency. This observation has been confirmed by Prince Ferdinand in two of his cases in which the staphylococcus alone was found. In both of these the course of the disease was comparatively short and recovery was perfect; in the first case without operative treatment of any kind; in the second, after aspiration alone.

Of the 8 cases in which the streptococcus was found, 4 followed influenza, 2 pneumonia. In 2 the exudate was at first serous, but afterward became purulent; the others were empyemas from the start. All were severe cases, necessitating resection of ribs. Three ended fatally, and in the others convalescence was very slow.

It has long been supposed that many cases of pleurisy with effusion have their origin in a tubercular process in the pleura. Considering the difficulty attending the detection of the tubercle bacillus in such fluids, the failure to find it in suspected cases has not been regarded as opposed to this view, and recently its detection in the exudate in 31 cases of pleurisy has led some to express the belief that all cases in which bacteria could not be found in the exudate must be tubercular. While pointing out the fallacy of this extreme view, Prince Ferdinand is still forced, as the result of his studies, to admit that a very large number of such pleurisies must have such origin. In 5 of his cases in which bacteria could not be detected in the pleuritic exudate, he was able to find unmistakable evidence of tuberculosis of the lungs (physical signs, tubercle bacilli in the sputum, and, in 2 cases, autopsy), and

in 2 empyema cases, which at first failed to reveal bacteria, tubercle bacilli were discovered after more careful examination. He therefore concludes that, when there is no history of acute pneumonia or neoplasm of any kind, when there is little tendency to absorption of the exudate, and particularly if it be at the same time sanious, the failure to find bacteria in the exudate may be regarded as strongly pointing to a tubercular origin of the pleurisy.

The bearing of these facts upon prognosis and treatment is not far to seek. Prince Ferdinand groups the various pleuritic exudates in an ascending series as regards intensity as follows: 1. Serous pneumococcus exudates. 2. Serous staphylococcus exudates. 3. Pneumococcus empyemas. 4. Staphylococcus empyemas. 5. Streptococcus empyemas. A bad prognosis also naturally attaches to exudates resulting from tuberculosis and sepsis.

The streptococcus exudates, being the most severe, should be radically treated by early resection, even though they be serous at first, for they will most certainly later become purulent. Unless thus early and vigorously treated these cases are apt to prove very severe, and often fatal as the result of septic absorption.

In the case of the staphylococcus exudates the problem is somewhat more difficult, as the prognosis is much less certainly bad. Aspiration and careful observation of the course of the disease are here recommended, when the exudate is serous. If it become purulent, however, it may justly be considered that the process is becoming more intense, and resection is then indicated.

When the diplococcus pneumoniæ is determined to be the cause of the exudate, whether serous or purulent, the prognosis may be regarded as good, other things being equal, and Prince Ferdinand recommends waiting for about three weeks before resorting to radical operative treatment, in the hope that spontaneous absorption may take place. Even then he advocates thorough thoracentesis first, trusting that no second accumulation of pus may occur. If this, however, should result, nothing remains but resection, and a speedy cure may be expected after thorough drainage of the chest.

In conclusion, Prince Ferdinand strongly urges the bacteriological examination of the exudate in all cases of pleurisy, and the importance of making the treatment accord with the information so obtained.

It may be questioned whether Prince Ferdinand's statement, that the exudate in streptococcus pleuritis inevitably becomes purulent, is not somewhat too sweeping, as Goldscheider (*Zeitschrift für klinische Medicin.*, 1892, xxi. 363) has recently reported three such cases in which the exudate remained sero-fibrinous throughout the course of the disease, at no time being purulent. There can be no doubt, however, of the correctness of Prince Ferdinand's conclusion as to the comparative severity of the streptococcus cases, and the need of earlier and more radical treatment for them.

MYOSITIS OSSIFICANS.

STONHAM (*The Lancet*, December 31, 1892, No. 1485) couples with the report of a case of this rare disease a summary of its principal features as heretofore described, giving also a very full bibliography of the published cases.

The lesion consists in the formation of dense deposits of a bony nature in

the skeletal muscles, with consequent degeneration of the muscle tissue and immobility. The process usually begins during youth and is steadily progressive. The muscles of the neck, shoulders, and back are those first affected in most cases; later, those of the chest and extremities. The body may finally be rendered quite rigid.

Heredity seems to have no part in the production of the disease, nor can any distinct etiology be formulated further than that when the disease is once fairly under way slight injury seems to determine the formation of new foci of the process. The viscera usually remain in good condition.

Death often occurs from pulmonary complication (pneumonia or tuberculosis), or from suppuration about the ossific deposits, with secondary septic absorption. Treatment is found to be useless.

POLLARD, in the same number of *The Lancet*, presents the history of a case of myositis ossificans, typical in every respect, in which he attempted to give relief by removal of portions of the bony tissue. Temporary benefit resulted, with partial restoration of motion, but this was of short duration only, fresh deposits forming at the site of operation.

TUBERCULOSIS AMONG CATTLE.

RIECK (*Vierteljahrsschrift für gerichtliche Medizin und öffentliches Sanitätswesen*, 1892, No. 4) presents the results of the examinations made at the Leipzig abattoir as regards tuberculosis during the years 1888 to 1891, inclusive. During this time 67,977 cattle were slaughtered, of which 20.4 per cent. were found to be tubercular. The increased proportion of tubercular animals during the latter part of this time is explained by the fact that the examination has latterly been much more searching. In 1891, 26 per cent. of the animals were reported as tuberculous.

[It is hardly to be supposed that the large proportion of tubercular animals observed in Leipzig obtains everywhere, but that one-quarter of those slaughtered *anywhere* in one year should be tuberculous suggests a very considerable prevalence of the disease among cattle *everywhere*, and this is verified by experience. It is much to be regretted that so little supervision of our slaughter-houses is deemed necessary. Until we systematically attack every known source of infection of tuberculosis we can hardly expect to witness much reduction of its ravages among human beings. The fact that 15 per cent. of the community are its victims, classes failure to employ every known means of prophylaxis in the category of criminal negligence.]

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